

CLAIMS:

We Claim:

1. A sensor system for sensing at least one occupant characteristic of a vehicle occupant, comprising:

5 means for transmitting an electromagnetic energy signal toward an occupant location within a vehicle;
means for detecting whether absorption of the energy signal by a vehicle occupant occurs and for providing an absorption signal indicative thereof; and
means for processing the absorption signal to determine at least one occupant characteristic.

10 2. The system of claim 1, wherein said means for transmitting includes means for transmitting electromagnetic energy signal toward the occupant location, and said means for detecting includes means for detecting absorption of the energy signal.

3. The system of claim 1, wherein said means for processing includes means for determining if a vehicle occupant is present as the occupant characteristic.

4. The system of claim 1, wherein said means for processing includes means for determining a size of a vehicle occupant as the occupant characteristic.

5. The system of claim 1, wherein said means for processing includes means for determining location of a vehicle occupant with respect to the vehicle as the occupant characteristic.

6. The system of claim 1, wherein said means for processing includes means for determining at least one biometric feature of the vehicle occupant as the occupant characteristic, the at least one biometric feature being selected from a group consisting of a voice print, a hand print, a finger print, an iris scan and a facial feature.

7. The system of claim 1, wherein said means for processing includes means for determining a type of a vehicle occupant as the occupant characteristic.

8. The system of claim 7, wherein said means for processing includes means for determining whether the type of a vehicle occupant is a child in a child seat.

9. The system of claim 1, wherein said means for transmitting and said means for detecting are arranged on a common side of the vehicle occupant location.

10. The system of claim 1, wherein said means for transmitting is a first means for transmitting and said energy signal is a first energy signal, said system including a plurality of means for transmitting, each for transmitting an energy signal toward the occupant location, said means for detecting includes means for detecting whether absorption of each energy signal by a vehicle occupant occurs and for providing signals indicative thereof.

11. The system of claim 10, wherein one of said plurality of means for transmitting is mounted within a headliner of the vehicle, and another of said plurality of means for transmitting is mounted within an instrument panel of the vehicle.

12. The system of claim 11, wherein one of said plurality of means for detecting is mounted within a door of the vehicle.

13. The system of claim 1, wherein said means for transmitting is mounted within a portion of the vehicle other than a headliner, and said means for detecting is mounted with a portion of the vehicle other than a seat of the vehicle.

14. The system of claim 1; wherein said means for processing includes means for providing a signal indicative of the at least one occupant characteristic for use within an occupant protection system.

15. A method for sensing at least one occupant characteristic of a vehicle occupant, comprising the steps of:

transmitting an energy signal toward an occupant location within a vehicle;
detecting whether absorption of the energy signal by a vehicle occupant occurs;
providing an absorption signal indicative of the occurrence of energy absorption; and
processing the absorption signal to determine at least one occupant characteristic.

16. The method of claim 15, wherein said step of transmitting includes transmitting an electromagnetic energy signal toward the occupant location, and said step of detecting includes detecting absorption of the energy signal.

17. The method of claim 15, wherein said step of processing includes determining if a vehicle occupant is present as the occupant characteristic.

18. The method of claim 15, wherein said step of processing includes determining a size of a vehicle occupant as the occupant characteristic.

19. The method of claim 15, wherein said step of processing includes determining a location of a vehicle occupant with respect to the vehicle as the occupant characteristic.

20. The method of claim 15, wherein said step of processing includes determining a type of a vehicle occupant as the occupant characteristic.

21. The method of claim 20, wherein said step of processing includes determining whether the type of a vehicle occupant is a child in a child seat.

22. The method of claim 15, wherein said step of processing includes determining at least one biometric feature of the vehicle occupant as the occupant characteristic, the at least one biometric feature being selected from a group consisting of a voice print, a hand print, a finger print, an iris scan and a facial feature.

23. A sensor system for sensing at least one occupant characteristic of a vehicle occupant, comprising:

- means for transmitting an energy signal toward an occupant location within a vehicle;
- means for detecting whether absorption of the energy signal by a vehicle occupant occurs;
- means for providing an absorption signal indicative of the occurrence of energy absorption; and
- means for processing the absorption signal to determine at least one occupant characteristic.

24. A method for sensing at least one occupant characteristic of a vehicle occupant, comprising the steps of:

- transmitting an energy signal toward an occupant location within a vehicle;
- detecting whether absorption of the energy signal by a vehicle occupant occurs and providing an absorption signal indicative thereof; and
- processing the absorption signal to determine at least one occupant characteristic.